IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An encryption apparatus for performing an encryption operation using a public key encryption technique, said encryption apparatus comprising:

public key encryption processing means for performing an encryption operation on data using a public key encryption technique to generate encrypted data;

hash value generation means for generating a hash value which is used by the public key encryption processing means; ~~and~~

storage means for storing the hash value; and[[,]]

control means for controlling the hash value generation means and the public key encryption processing means, the control means suppressing ~~wherein when the hash value generation means accesses the storage means, at least other~~ arithmetic operations performed by the public key encryption processing means when the hash value generation means accesses the storage means ~~are suppressed~~.

Claim 2 (Original): An encryption apparatus according to claim 1, wherein the public key encryption processing means includes a register group having a register for maintaining an arithmetic operation value and a register for storing a result, the hash value generation means includes a register group having a register for maintaining an arithmetic operation value and a register for storing the generated hash value, at least the register group of the public key encryption processing means and the register group of the hash value generation means are shared, and the hardware is switched in a time-shared manner depending upon the operation mode.

Claim 3 (Currently Amended): An encryption apparatus according to claim 1, further comprising:

common key encryption processing means for performing an encryption operation using a common key encryption technique to generate a random number for use in the encryption operation of the public key encryption processing means, the common key encryption processing means including a register group having a register for maintaining the resulting data and a register for maintaining key data, wherein the register group of the common key encryption processing means and the register group of the public key encryption processing means are shared.

Claim 4 (Original): An encryption apparatus according to claim 3, wherein the common key encryption processing means performs the encryption operation using the DES technique.

Claim 5 (Original): An encryption apparatus according to claim 1, wherein the public key encryption processing means includes public key encryption arithmetic operation core means for performing various arithmetic operations for public key encryption, the hash value generation means includes hash value arithmetic operation core means for performing various arithmetic operations for hash value generation, and the public key encryption arithmetic operation core means and the hash value arithmetic operation core means are shared.

Claim 6 (Currently Amended): An encryption apparatus according to claim 5, wherein the public key encryption arithmetic operation core means includes adder means, and shares the adder means with the hash value arithmetic operation core means.

Claim 7 (Original): An encryption apparatus according to claim 1, wherein the public key encryption processing means includes a bus switch for making the bit width variable, and the public key encryption processing means shares the bus switch with the hash value generation means.

Claim 8 (Currently Amended): An encryption apparatus according to claim 7, further comprising:

common key encryption processing means for performing an encryption operation using a common key encryption technique to generate a random number for use in the encryption operation of the public key encryption processing means, the common key encryption processing means including a bus switch, wherein the bus switch of the common key encryption processing means and the bus switch of the public key encryption processing means are shared.

Claim 9 (Original): An encryption apparatus according to claim 1, wherein the hash value generation means stores the generated hash value into the storage means at an address which is used by the public key encryption processing means, and the public key encryption processing means reads the hash value stored in the storage means.

Claim 10 (Original): An encryption apparatus according to claim 1, wherein the public key encryption processing means performs the encryption operation using the elliptic curve cryptosystem technique.

Claim 11 (Original): An encryption apparatus according to claim 1, wherein the hash value generation means performs an operation using the SHA-1 technique.

Claim 12 (Original): An encryption apparatus according to claim 1, wherein the encryption apparatus is incorporated in a non-contact IC card having a communication function.

Claim 13 (New): An encryption apparatus for performing an encryption operation using a public key encryption technique, said encryption apparatus comprising:

a public key encryption processing unit configured to perform an encryption operation on data using a public key encryption technique to generate encrypted data;

a hash value generation unit configured to generate a hash value which is used by the public key encryption processing unit;

a storage unit configured to store the hash value; and

a control unit configured to control the hash value generation unit and the public key encryption processing unit, the control unit configured to suppress arithmetic operations performed by the public key encryption processing unit when the hash value generation unit accesses the storage unit.

Claim 14 (New): An encryption apparatus according to claim 13, wherein the public key encryption processing unit includes a register group having a register configured to maintain an arithmetic operation value and a register configured to store a result, the hash value generation unit includes a register group having a register configured to maintain an arithmetic operation value and a register configured to store the generated hash value, at least the register group of the public key encryption processing unit and the register group of the hash value generation unit are configured to be shared, and the hardware is configured to be switched in a time-shared manner depending upon the operation mode.

Claim 15 (New): An encryption apparatus according to claim 13, further comprising:

a common key encryption processing unit configured to perform an encryption operation using a common key encryption technique to generate a random number for use in the encryption operation of the public key encryption processing unit, the common key encryption processing unit including a register group having a register configured to maintain the resulting data and a register configured to maintain key data, wherein the register group of the common key encryption processing unit and the register group of the public key encryption processing unit are shared.

Claim 16 (Original): An encryption apparatus according to claim 15, wherein the common key encryption processing unit is configured to perform the encryption operation using the DES technique.

Claim 17 (New): An encryption apparatus according to claim 13, wherein the public key encryption processing unit includes a public key encryption arithmetic operation core unit configured to perform various arithmetic operations for public key encryption, the hash value generation unit includes a hash value arithmetic operation core unit configured to perform various arithmetic operations for hash value generation, and the public key encryption arithmetic operation core unit and the hash value arithmetic operation core unit are shared.

Claim 18 (New): An encryption apparatus according to claim 17, wherein the public key encryption arithmetic operation core unit includes an adder, and public key encryption arithmetic operation core unit is configured to share the adder with the hash value arithmetic operation core unit.

Claim 19 (New): An encryption apparatus according to claim 13, wherein the public key encryption processing unit includes a bus switch for making the bit width variable, and the public key encryption processing unit is configured to share the bus switch with the hash value generation unit.

Claim 20 (New): An encryption apparatus according to claim 19, further comprising:

a common key encryption processing unit configured to perform an encryption operation using a common key encryption technique to generate a random number for use in the encryption operation of the public key encryption processing unit, the common key encryption processing unit including a bus switch, wherein the bus switch of the common key encryption processing unit and the bus switch of the public key encryption processing unit are shared.